

ART. XVI.—*Note on a Supposed Nematode Parasitic
in the Circular Muscle of an Earthworm.
(Diporochoeta grandis).*

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(With Plates XX., XXI.)

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While examining some specimens of the earthworm *Diporochoeta grandis*¹ from Endeavour River, Queensland, I was struck by the appearance of some curious yellow patches scattered at irregular intervals over the external surface of certain individuals. These patches measure about 3 mm. by 1 mm., and are slightly raised.

On opening several under the dissecting microscope, they were found to contain a mass of structureless yellow material, embedded in which was a single thread-like form, in many cases much coiled. On clearing the contents of the patches in carbolised absolute (for the use of which and for valuable advice I am indebted to Dr. G. Sweet), I found on examination two distinct sets of thread-like forms closely resembling nematodes in general appearance.

The first (Fig. 1) had the ordinary truncated end of a nematode, with a faint indication of a pharynx leading to an alimentary canal, apparently ending abruptly in front of the sharply recurved posterior end.

The second (Fig. 2) was definitely pointed at each end, with no apparent pharynx. None of the specimens were straight, so that it was hard to obtain accurate measurements. The

¹ Spencer, "Further Descriptions of Australian Earthworms, Pt. I." Proc. Roy. Soc. Victoria, vol. xiii. (1900), p. 63.

length of the first form, as nearly as could be computed, was 3.9 mm.; that of the second, 3.6 mm.; while the breadth of both was .18 mm.

I cut sections of the body wall of the earthworm in the region of one of these patches, staining them with acetic acid alum carmine, and in some cases double staining with eosin. These sections showed a distinct fibrous capsule in the circular muscle of the body wall of the host (Fig. 3, c). Inside this the body of the parasite was cut across and surrounded by more or less of the structureless substance before mentioned, which was usually rather deeply pigmented (Fig. 3, p). This substance would seem to be either excrete material from the parasite itself, or, rather, the disintegrated material of the body wall of the host, as no cellular arrangement was made visible by any method of treatment. The body of the parasite itself had a very nematode-like appearance, but even under the low power it was clear that its internal structure was not well preserved—a fact which was probably due to the presence of cuticle, since the tissues of the host were in very good condition. Practically the whole of the internal cavity seemed filled with long clear cells, which were apparently attached to the alimentary canal at their inner end. Under a high power, however (4 eyepiece, 7 obj., Fig. 4), these cells were found to be lying loose in the body cavity attached at their outer end to some inward projections of the apparently structureless body wall. This body cavity was divided fairly distinctly into two halves, and each of these much less distinctly also into two. In all four quarters were ten inward projections, but the attached cells had none of the characteristic striations of nematodes. The only indication of the lateral line was very indistinct. From it the clearest mesenteries (Fig. 4, mes.) pass to the alimentary canal, along the whole length of which run two structureless lines which stain homogeneously with eosin, in much the same way as the body-wall, and, occasionally spread almost round the alimentary canal. The cells of the latter are very definite, and are regularly arranged with their nuclei towards the inner cavity (Fig. 4, al.c). At one end is a curious structure apparently arranged around the alimentary canal. (Fig. 5.) On the outside is the homogeneously staining mass

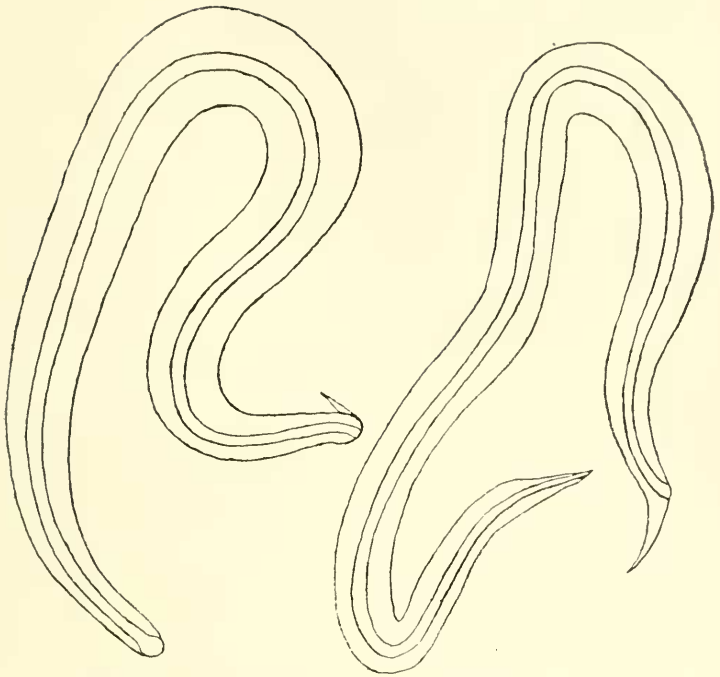


Fig 1

Fig 2

Fig 3

